



REPORT

—ON—

Manual Training

PRESENTED TO THE

Toronto Public School Board

—BY—

JAMES L. HUGHES

Public School Inspector

December 20th, 1900

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REPORT ON MANUAL TRAINING.

To the Chairman and Members of the Public School Board,

GENTLEMEN :

As instructed I respectfully present the following report and recommendations regarding Manual Training :

As the words Manual Training are used to describe widely different phases of work, I wish to make the meaning in which I use them clear. I do not mean schools or classes in which pupils are taught any particular trade, or in which they are specially directed towards one occupation more than another. While school life should qualify each child for its highest success in practical life, it is clearly not the function of the public schools to teach trades. To do so would be improper for two fundamental reasons. It would influence all children unduly towards one occupation, and it might unjustly affect the condition of those now engaged in the trade or in similar trades by creating an unnatural and unfair competition.

Every subject on a school programme has two sets of advantages, if it be worthy of a place in the course of study. It may be approved for its educational value, or for its economic or practical value. There should really be no opposition between these values. The most educative subject should be most practical in its influence, and the most practical subject may be made most educative.

Manual Training, as its name indicates, includes various kinds of work with the hand. It is really in all its forms a method of expressing the ideas of the child with material things in construction or representation. Whether the child works with paper, or clay, or cardboard, or wood, or any other material, he is aiming to produce something in visible form of which he has a definite plan

in his mind. The plan may be original or it may be the result of the teacher's direction or explanation. His plan or pattern is first drawn accurately to scale and then cut or moulded into the required form. The plan may include a complete article of simple form, or it may represent a single joint or other step in the construction of a complete whole. The sequence of logical steps in accurate construction may be arranged as definitely in Manual Training, as the steps in Arithmetic or Euclid or any other subject.

Manual Training is, therefore, in this report, not to be understood as a system of trade schools, or as something to be taught chiefly for its economic value, but as a system of definite self-expression with things; as formative, constructive self-expression.

The "occupations" of the Kindergarten are really a system of Manual Training adapted to young children. The child before he goes to school works at making things with every kind of material available inside or outside of the house. He makes mud pies and is most happy when he is constructing things with dirt, or clay, or wood, or bricks, or stones, or whatever material he can find. He loves more than anything else to do something to re-construct his environment; to make things; to transform things. When, too often, he uses material that his parents do not want him to use, he does so simply because he has not been provided with proper materials suited to his stage of development. Even when he is destructive he is acting in response to his divinely implanted tendency to transform things. He should never lose his tendency. He should always desire to improve things in harmony with his own conceptions. When children become destructive instead of constructive their parents and the school authorities are to blame. The same powers that make them destructive would make them constructive, and at the same time give them great happiness, if they were supplied with suitable material in sufficient variety of forms. Froebel gave a large variety of materials to the child in the Kindergarten in order that he might continue in a systematic and progressive manner the constructively productive work he loved so well to do before he went to school. A correct system of educative Manual Training should be logically based on the work done in the Kindergarten, and should be adapted to the ages of the boys and girls, too, as they grow older.

The following is a summary of the chief reasons for introducing Manual Training into the schools:

(a) Educative reasons:

A subject may be educative either because it gives added knowledge or culture, or because it develops the brain itself and gives greater power, especially executive or outgoing power. Manual Training is educative chiefly because of its use in the development of power, and this is the most important function of education.

It develops the brain because the mind is called into activity in guiding the hand.

It cultivates the motor or executive power of the mind because it necessarily calls upon the mind to create ideals and to guide the hand in making these ideals in material form. The child does not merely take in knowledge and make it over into new intellectual forms: he constructs things outside of himself in harmony with his ideals or plans. This is one of the most important kinds of true education. One of the chief reasons why so many pupils are lacking in independent power, when they leave school, is the fact that their work in school has been chiefly the taking in of knowledge, or at the best, the making over of knowledge into new forms of thought. The working out of knowledge in some practical way is the only sure way to give it real value, and the only sure way, too, to fix it clearly, definitely, and avaiably in the mind. The average young man has less tendency to achieve his purposes than the child has. It is a serious charge against the educational system of the past that they have made adulthood less effective than it should have been by increasing the tendency to acquire knowledge but reducing the tendency to use knowledge effectively. The child's tendency to execute his plans should never be lost. Nearly all the school processes have in the past tended to develop a one-power brain. Real education must be gained by "making the inner outer." The complete process of education means primarily the enrichment of the inner life of the mind, but the circuit of power is completed only when the inner after its enrichment is wrought out independently in some form. The more

processes by which the inner may become the outer, the better ; the broader and more complete the training of the mind will become. Manual Training offers many varieties of opportunity for motor or executive mind training, and it is therefore of vital importance in the training of an independent, original, self-reliant race, with power to initiate and accomplish new ideals and plans.

It trains the observant powers. Children look carefully and see definitely only when they are looking or examining with a clear end and interesting purpose. They observe and examine most definitely when the motive is their own, and especially when the complete accomplishment of their purpose depends on accurate observation. Most of the school processes develop the power of slow and partial observation in response to the teacher's suggestions. Manual Training aids in definite, independent and purposeful observation.

It develops the power of judging in regard to size, form, and the relationship of parts to wholes, and on this account it forms the best possible basis for mathematical culture. The development of apperceptive centres of size, form, and relationship in the minds of the children is the true basis for mathematical power.

It helps to form accurate and definite conceptions in the minds of the children. Children in early years get their clear ideas from using material things ; not from merely examining them or handling them, but from actually using them. If we had not so many opportunities for working with things in early life at home one of the most essential elements in our education would be omitted. Those are the dullest children as a class who have had least opportunity for the manual work of childhood before they came to school. Manual training continues in a systematic way this same fundamental process by which the child's mind was trained in exact knowledge and definite thought power before he went to school. The muddled condition of many minds results mainly from the lack of a clear and definite body of thought centres formed in early life. Manual Training accomplishes its best work before the age of thirteen.

It aids in the development of the power of attention, and the power to give concentrated and sustained attention is the basis of

all real intellectual progress. It is hard for young children to give attention to books, or to knowledge of any kind, when it is communicated as mere abstract knowledge. Attention depends on interest and young children are not naturally interested in books or abstractions. They like to deal with real things, and they like best of all to use real things for the purpose of making other things they need in carrying out their plans. This deepest of all their natural interests is the surest basis of productive attention, so Manual Training is logically the best source of interested attention.

Even when children are old enough to be interested in books Manual Training is of great importance in cultivating the power of attention because it forms such a distinct variety in the work of the child, and variety of work helps greatly in sustaining interest.

But even real things, however interesting in themselves, soon lose their interest, if they are used as objects to be only examined or studied. Appropriate things suitable to the stage of a child's development never lose their interest, if the child is allowed to use them in construction or in carrying out his own original plans.

It increases the opportunities for discovering the special power of each individual pupil. The special power of each child is the central element of his character; and all his true education must be related to this power. Manual Training not only aids in revealing the special ability of the child, but, what is much more important it helps to reveal the child to himself.

Manual Training is a great aid in discipline. Children are attentive, orderly and happy when they are occupied at interesting work. They are frequently irritable, restless and disorderly for lack of interesting occupation. They require productive occupation to relieve them intellectually, and to provide a satisfactory application of their physical energy. Manual Training accomplishes both these desirable results.

It helps to form habits of exactness, definiteness and accuracy. These are fundamental elements of character, and Manual Training

develops them more incidentally and more effectively than any other school study. The child's plans and calculations must be exact, his measurements must be in harmony with a fixed scale and made accurately, his work with knife, saw, chisel or plane must be definite in order that his plan may be wrought out into a properly finished product. When a boy forms a good piece of work, he is doing very effective work in forming a good character. The effort to secure accuracy, definiteness, exactness in material products, in harmony with a clearly conceived plan, weaves these important elements into the character.

Manual Training stores the mind with definite, clearly conceived, thoroughly understood ideas that form the basis of accurate thinking, and clear insight in maturer years. Ideas are received into the mind in several ways:—by verbal descriptions orally or from visible language, from illustrations printed or painted, from illustrations made in the child's presence, from a personal inspection of things, or from the use of things under the direction of a teacher, or by expressing and revealing the original conceptions and plans of the pupil himself. The last two plans are much more effective than the others—not only in fixing thought, but in making the acquired thought the centre round which new thought will naturally gather in properly comprehended relationship, and in making all thought an element in productive, propulsive character.

It aids in physical culture. The physical exercise in connection with work is strengthening to the muscles and stimulating to the vital organs, but its best influence on the health results from the fact that it provides pleasant and interesting occupation, and thus invigorates the nervous system. It is one of the most perfect tonics for the nervous systems of both children and adults.

It develops the muscular sense. Athletics and gymnastics develop physical power and muscular activity. Manual Training gives the finer cultivation of what is called "the muscular sense" which unconsciously informs the mind as to what the muscles are doing, and trains them to respond automatically to the decisions of the mind. This is a very important element in physical training.

Dr. Birch-Hirschfelder, of the University of Leipsic, considers Manual Training of the highest importance on account of its "hygienic value." He says: "Instruction in manual dexterity, however, acts in a much higher sense upon the *nerves* than upon the *muscles*, and this is very especially to be considered. It works upon the organs of sense, such as sight, muscular sense, etc., which it brings into continual combined activity, and it works upon the peripheral regions of our nervous system. Instruction in manual dexterity is in a higher sense gymnastics of the nerves, and just because it is a gymnastic of the nerves, it has an especially unburdening effect upon the brain, which has been strained by one sided activity."

Manual Training is the best possible change from study and mere book work for the direct purpose of giving culture. Book work continued too long deadens the power of the mind to either receive or assimilate or use knowledge. Variety is essential and Manual Training not only gives variety to school life but variety in most productive form. Every true hygienic condition demands alternation of work and rest. For the brain and nerve system change is the highest form of rest.

It makes children happy. They are happiest when using their highest power. Their highest power is selfhood, and the highest function of selfhood is original, independent, creative work in constructing something useful. Happiness is a very important element in character development, and in reforming the character of those children who have been dwarfed or warped by heredity, bad training, or neglect. Manual Training is a reformatory agent of beneficent influence. Many children are discontented and irritable and rebellious because they have not proper opportunities to use their creative powers in designing and producing articles with material suitable for their stage of development. Everywhere the report is made, that Manual Training makes discipline easy and natural, and therefore effective in true character building.

It is the only logical basis for a system of technical education in higher schools.

Manual Training has many advantages in helping to lay a true moral basis for full character development. It systematizes

and directs the creative power of the child, and therefore typifies the ideal condition of human life, which is to have the whole human race happily engaged in productive work.

It gives the child correct ideals in regard to work. One of the most deplorable effects of the imperfect training of the past is the wrong attitude of so large a number of people towards productive work. Work, which should be man's highest source of joy, too often degenerates in drudgery. In the ideal conditions of society in the coming time all men shall be happy producers, or workers for the common good. It is the highest function of the schools to qualify the race for this condition of happiness in productivity by personal effort. Manual Training will aid in this great aim more effectively than any other school study or school work.

It develops the virtues of neatness, accuracy, diligence, perseverance, order and definiteness. It preserves the taste for work that children have naturally, and increases respect for honest labor.

It increases the proper respect of men and women for their own powers. More failures in life result from lack of true self-reverent faith than from any other single cause.

It makes men more truly practical, more operative, more executive, more determined to act well instead of merely thinking and feeling well, and therefore gives a practical vitality to moral life.

It has a direct moral influence. Swedish statisticians claim that since the introduction of Sloyd into the schools of Sweden the people have become more thrifty and less drunken.

(b) Economic advantages :

While it does not teach trades, it gives such a training to hand and eye acting in harmony with an independent mind as will best qualify for any trade or occupation. The boy or girl "whose fingers are all thumbs," is in this deplorable condition because of indefiniteness of directive and controlling brain power.

It enables workmen to meet new conditions in the ever progressive evolution of productive machinery. Trade schools have a tendency to confine to one special occupation. Manual Training qualifies for better work in any trade that may be adopted from choice or from the force of new conditions.

It gives special training in the powers required by the great majority in making a living. It aids in qualifying all pupils to reach a higher condition of skill in any trade or occupation they may choose. Mere justice to each child demands, as the duty society owes to him, that he shall be qualified for his highest degree of skill in the occupation he adopts.

By increasing the possibilities of attaining a higher degree of skill, Manual Training lays a broader foundation for individual and national wealth. The skilled workman has greater producing power than the unskilled workman.

The increase of wealth producing power adds to the possibility of comfort and culture in the home and all the incidental physical, intellectual and moral advantages resulting naturally from such improved conditions.

It has been urged that "Manual Training gives a special tendency towards certain trades." This is a valid objection against "Trade Schools," but not against Manual Training. Statistics have shown that the charge made is not in harmony with actual experience.

It is sometimes stated that Manual Training in schools would produce a large number of imperfectly trained workmen. It would really produce a race of easily trained workmen, who will have trained minds, trained eyes, and trained hands, and a better knowledge of materials and more skill in using them and more originality in finding new ways to use material in order to keep up with advancing civilization. Such pupils will attain more easily to a high degree of skill in any trade than if they had not received the culture and experience of Manual Training.

Manual Training must ultimately become an element in the

school life of all children in order that they may be prepared for the fullest development in the later stages of their evolution. It will be introduced into all schools not only to fit men and women for making a living but to qualify them for higher living; not to teach trades but to give more power; not merely to mould material things but to mould humanity; not only to give manual dexterity but to lead to creative activity in productive departments of life work; not for the making of things but for the making of better men and women.

Manual Training accomplishes its best work in the early years of a child's life. The conditions of spontaneous interest, and susceptibility to development of brain and eye in early years make it possible for greatest results, and most permanent impressions at this time. The Kindergarten is therefore the ideal basis of a course of Manual Training, as Froebel intended it to be for all kinds of higher development.

In order to show the opinion of the leading educators of Europe in regard to Manual Training, I submit a few extracts from the report presented to the Imperial Parliament by the commissioners on Manual Instruction in the primary schools under the National Board of Education in Ireland, in the year 1898, after taking the evidence of 186 of the leading educators of Europe.

"We express our strong conviction that manual and practical instruction ought to be introduced, as far as possible, into all schools where it does not at present exist, and that in those schools where it does exist it ought to be largely developed and extended. We are satisfied that such a change will not involve any detriment to the literary education of the pupils, while it will contribute largely to develop their faculties, to quicken their intelligence and to fit them better for the work of life."

"The present system, which consists largely in the study of books, is of a one sided character: and it leaves some of the most useful faculties of the mind absolutely untrained. We think it important that children should be taught not only to take in knowledge from books, but to observe with intelligence the material world around them; that they should be trained in habits of correct reasoning on the facts observed; and that they should, even at

school, acquire some skill in the use of hand and eye to execute the conceptions of the brain. Such training we regard as valuable to all, but especially valuable to those whose lives are to be mainly devoted to industrial arts and occupations."

"We have the practical experience of those schools in England, Scotland, and on the Continent of Europe, in which such a system as we recommend has been already introduced and tested. The evidence we have received on this point, is absolutely unanimous and, as we think, entirely conclusive. We have been told over and over again, that the introduction of manual and practical training has contributed greatly to stimulate the intelligence of the pupils, to increase their interest in school work, and to make school life generally brighter and more pleasant."

"We cannot but regard it as a strong proof of the usefulness of this branch of school work, that the testimony of those who have thus had an excellent opportunity of practically estimating its usefulness, is altogether to the effect that not only have the hand and eye training exercises been effective in attaining the objects already enumerated as specially aimed at in their introduction, but that they have contributed notably to the improvement of the work of the school all round."

"It makes the children alert; it makes them more intelligent; it is entirely a training of the intelligence, and there is no getting off with guess work; it cultivates the power of rapid observation; it makes the children from the very first attach great importance to exactness; it goes to develop the inventive faculty; it is a relief to the children by varying the nature of their school work; refreshed and brightened by it, they have greater zest for their book work; it has been found an effectual check to nervousness; it gives a dull child the chance of getting onto the same plane with smarter children, and thus gives to dull children a useful incentive to exertion in the other work of the school; the exercises in it are the most popular with the pupils."

RECOMMENDATIONS:

Three fundamental principles should guide the Board in introducing Manual Training; it should be done as economically as possible, the aim should be educational rather than economic; and the work should be correlated so far as possible with the other work of the schools. The course I recommend as most suitable for Toronto is:

1. The Kindergartens as they already exist, are the most comprehensive, the most logical, and the most practical basis for educational Manual Training. All the Kindergarten occupations and the clay modelling are perfect types of Manual Training for young children.

2. A thorough system of drawing in all grades.

3. A progressive system of work in cardboard construction for First and Second Book classes.

4. Above the Second Book the work should be different for girls and boys.

In the Third Book classes the work should be: for girls—sewing; for boys—knife work with thin wood, and Sloyd work.

5. In Fourth and Fifth Book classes:

For Girls—Sewing and Cooking.

For Boys—Work in Wood.

The work recommended for First, Second and Third Book classes can be done in regular class rooms by the regular teachers, with no apparatus except knives, scissors, and in Third Book classes for Boys, small boards to lay on the desks.

For the higher classes it would be necessary to fit up a few rooms with cooking apparatus for girls, and with benches and

tools for boys. The benches could be constructed under the direction of Mr. Bishop, and the required number of tools is small. The fittings and utensils for a room for cooking may be put in for from a hundred dollars to a hundred and fifty.

The benches and tools for a boys' room would cost about a hundred and twenty dollars.

One room for cooking or wood working would accommodate ten classes each week, giving two hours, one forenoon or one afternoon, to each class. Fifteen classes might be taught in one room by giving each class one hour and a half each week and having two classes each forenoon. If the pupils remained later two classes might meet each afternoon too, and thus twenty classes might receive one hour and a half lessons each week in one room.

There is no difficulty in recording the attendance of pupils at these classes. I have secured copies of the forms used in other cities for reporting the attendance of pupils to principals of the schools from which they come.

For the work as outlined above, the Board should appoint; one director of Manual Training to direct the work in all the schools, one director for sewing, one skilled carpenter for each room opened, and one teacher of cooking for each room opened,

I recommend that rooms be opened at first for the pupils of Fifth Book classes only. Two rooms for boys and two for girls would be sufficient at first. One for each sex should be in the eastern half, and the other in the western half of the city.

Respectfully submitted,

JAMES L. HUGHES,

Public School Inspector.